

WHAT IS CLAIMED IS:

1. A communication control apparatus comprising:
control means for, when a lower layer is
disconnected while data is being transmitted to a
5 different apparatus, permitting an upper layer to
maintain a session for a predetermined period of time,
and for, when a line connection is re-established
within said predetermined period of time, permitting
said upper layer to establish a connection for the
10 transmission of data.
2. A communication control apparatus according to
claim 1, further comprising:
setting means for setting said predetermined time.
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3. A communication control apparatus according to
claim 1, wherein said control means includes:
time determination means for determining whether a
predetermined time has elapsed;
20 re-connection determination means for determining
whether a different apparatus in a session has been re-
connected to a bus by the time said time determination
means determines said predetermined time has elapsed;
login determination means for, when said re-
25 connection means determines that said different
apparatus has been re-connected, determining whether a
login to said different apparatus has been successful;

reception determination means for, when said login determination means determines that said login has been successful, determining whether said different apparatus is capable of continuous reception; and

5 means for, when said reception determination means determines that continuous reception has been enabled, transmitting data to said different apparatus.

4. A communication control apparatus according to
10 claim 1, wherein said control means includes:

time determination means for determining whether a predetermined time has elapsed; and

clearing means for, when said time determination means determines that said predetermined time has
15 elapsed, clearing data that are being transmitted.

5. A communication control apparatus according to claim 1, wherein said lower layer is a layer for ensuring the transmission of data, and detects a line
20 disconnection or a line abnormality and performs a line disconnection process.

6. A communication control apparatus according to claim 1, wherein said lower layer includes a transport
25 layer defined in an OSI layer 7 and below, and said upper layer includes a session layer defined in said OSI layer 7 and above.

7. A communication control apparatus according to claim 1, wherein SBP-2 is employed as a protocol for said transport layer and below.

5 8. A communication control apparatus according to claim 1, wherein IEEE 1394 is employed as a physical layer, which is the lowest layer.

9. A communication control apparatus according to
10 claim 1, wherein said apparatus is a computer, and the different apparatus being a printer.

10. A communication control apparatus according to claim 1, wherein disconnection of said lower layer
15 occurs when said different apparatus is physically disconnected from a line, or when a new apparatus is connected to said line.

11. A communication control method comprising:
20 a control step of, when a lower layer is disconnected while data is being transmitted to another apparatus, permitting an upper layer to maintain a session for a predetermined period of time, and for, when a line connection is re-established within said
25 predetermined period of time, permitting said upper layer to establish a connection for the transmission of data.

12. A communication control method according to claim 11, further comprising:

a setting step of setting said predetermined time.

5 13. A communication control method according to claim 11, wherein said control step includes:

a time determination step of determining whether a predetermined time has elapsed;

10 a re-connection determination step of determining whether a different apparatus in a session has been re-connected to a bus by the time it is determined at said time determination step that said predetermined time has elapsed;

15 a login determination step of, when it is determined at said re-connection step that said different apparatus has been re-connected, determining whether a login to said different apparatus has been successful;

20 a reception determination step of, when it is determined at said login determination step that said login has been successful, determining whether said different apparatus is capable of continuous reception; and

25 a step of, when it is determined at said reception determination step that continuous reception has been enabled, transmitting data to said different apparatus.

14. A communication control method according to claim 11, wherein said control step includes:

a time determination step of determining whether a predetermined time has elapsed; and

5 a clearing step of, when it is determined at said time determination step that said predetermined time has elapsed, clearing data that are being transmitted.

15 15. A communication control method according to claim 11, wherein said lower layer is a layer for ensuring the transmission of data, and detects a line disconnection or a line abnormality and performs a line disconnection process.

15 16. A communication control method according to claim 11, wherein said lower layer includes a transport layer defined in an OSI layer 7 and below, and said upper layer includes a session layer defined in said OSI layer 7 and above.

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17. A communication control method according to claim 11, wherein SBP-2 is employed as a protocol for said transport layer and below.

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18. A communication control method according to claim 11, wherein IEEE 1394 is employed as a physical layer, which is the lowest layer.

19. A communication control method according to claim 11, wherein said method is executed by a computer, and the different apparatus is a printer.

5 20. A communication control method according to claim 11, wherein disconnection of said lower layer occurs when said different apparatus is physically disconnected from a line, or when a new apparatus is connected to said line.

10 21. A machine-readable storage medium which stores a communication control program, said communication control program comprising:

15 a control step of, when a lower layer is disconnected while data is being transmitted to another apparatus, permitting an upper layer to maintain a session for a predetermined period of time, and for, when a line connection is re-established within said predetermined period of time, permitting said upper
20 layer to establish a connection for the transmission of data.

22. A storage medium according to claim 21, wherein said communication control program further
25 comprises:

 a setting step of setting said predetermined time.

23. A storage medium according to claim 21,
wherein said control step includes:

a time determination step of determining whether a
predetermined time has elapsed;

5 a re-connection determination step of determining
whether a different apparatus in a session has been re-
connected to a bus by the time it is determined at said
time determination step that said predetermined time
has elapsed;

10 a login determination step of, when it is
determined at said re-connection step that said
different apparatus has been re-connected, determining
whether a login to said different apparatus has been
successful;

15 a reception determination step of, when it is
determined at said login determination step that said
login has been successful, determining whether said
different apparatus is capable of continuous reception;
and

20 a step of, when it is determined at said reception
determination step that continuous reception has been
enabled, transmitting data to said different apparatus.

24. A storage medium according to claim 21,
25 wherein said control step includes:

a time determination step of determining whether a
predetermined time has elapsed; and

a clearing step of, when it is determined at said time determination step that said predetermined time has elapsed, clearing data that are being transmitted.

5 25. A storage medium according to claim 21, wherein said lower layer is a layer for ensuring the transmission of data, and detects a line disconnection or a line abnormality and performs a line disconnection process.

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 26. A storage medium according to claim 21, wherein said lower layer includes a transport layer defined in an OSI layer 7 and below, and said upper layer includes a session layer defined in said OSI layer 7 and above.

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 27. A storage medium according to claim 21, wherein SBP-2 is employed as a protocol for said transport layer and below.

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 28. A storage medium according to claim 21, wherein IEEE 1394 is employed as a physical layer, which is the lowest layer.

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 29. A storage medium according to claim 21, wherein said medium is used by a computer, and the different apparatus is a printer.

30. A storage medium according to claim 21,
wherein disconnection of said lower layer occurs when
said different apparatus is physically disconnected
from a line, or when a new apparatus is connected to
5 said line.